

Serial No.: 10/648,012
Amdt. Dated: March 14, 2006

Attorney Docket No.: 73785-013

Amendments to the Claims:

Please amend the claims as follows:

1. (Currently amended) A wireless digital audio music system for spread spectrum communication of an audio music signal from the analog headphone jack connected to a battery powered spread spectrum transmitter and received by a battery powered spread spectrum headphone receiver comprising:

an analog headphone jack from an analog audio music source in communication with a battery powered digital transmitter;

said battery powered digital transmitter converts an analog audio music signal from said existing analog headphone jack to a digital signal using an ADC in communication with an encoder [at a signal rate of less than approximately 1.0 Mbps];

said encoder in communication with a channel encoder;

said channel encoder in communication with [a digital low pass filter;

said digital low pass filter in communication with] a digital modulator;

said digital modulator in communication with a spread spectrum communication modulator that utilizes a code generator to create [user code] a unique hop pattern for each individual user;

said spread spectrum communication modulator in communication with a transmit antenna that transmits at a radio frequency of approximately 2.4 GHz for receipt by a receiving antenna;

said receiving antenna in communication with a spread spectrum communication demodulator;

said spread spectrum communication demodulator in communication with a receiver code generator and with a digital demodulator;

said digital demodulator in communication with [a wide bandpass filter;

said wide bandpass filter in communication with] a channel decoder;

said channel decoder in communication with a receiver decoder;

said receiver decoder in communication with a DAC;

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said DAC in communication with a low pass filter to pass the analog music signal in the approximate frequency band of 20 Hz to 20 kHz; and

said low pass filter passing analog music signal will be amplified for processing to a speaker headphone set to provide high quality music for listening by a single user wearing the headphones.

2. (Canceled).

3. (Canceled).

4. (Currently amended) A method for battery powered wireless communication transmission and reception of high fidelity audio music between a battery operated digital transmitter and a battery operated digital receiver headphone comprising the steps of:

connecting the plug attached to said battery operated digital transmitter to the existing analog headphone jack of an audio music source;

converting a music audio signal to a digital communication signal using an ADC in communication with an encoder;

encoding the communication signal using channel encoding;

[digital low pass filtering the communication signal;]

modulating the digital communication signal using a digital modulator;

creating a spread spectrum signal using a code generator to modulate a [unique user code] unique hop pattern for each individual user;

transmitting said spread spectrum signal at a radio frequency of approximately 2.4 GHz [at a power level for reception at a distance up to approximately 10 feet from said battery operated transmitter];

receiving said spread spectrum signal at said battery operated receiver headphones;

demodulating said spread spectrum signal;

demodulating said digital communication signal;

[bandpass filtering said digital communication signal;]

channel decoding of said digital communication signal;

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converting said digital communication signal back to said analog music audio signal using a decoder in communication with a DAC; and

[communication] communicating said analog music audio signal to a headphone speaker within the headphone receiver.

5. (Canceled)

6. (Currently amended) An audio music digital wireless transmitter for spread spectrum communication of an audio music signal [from an analog headphone jack connected to a battery powered spread spectrum transmitter], comprising:

an analog headphone jack from an audio music source in communication with a battery powered digital transmitter;

said battery powered digital transmitter [converts] being configured to convert an analog audio music signal from said existing analog headphone jack to a digital signal using an ADC in communication with an encoder [at a signal rate of less than approximately 1.0 Mbps];

said encoder in communication with a channel encoder;

said channel encoder in communication with [a digital low pass filter;

said digital low pass filter in communication with] a digital modulator;

said digital modulator in communication with a spread spectrum communication modulator that utilizes a code generator to create [user code] a unique hop pattern for each individual user; and

said spread spectrum communication modulator in communication with a transmit antenna that transmits at a radio frequency of approximately 2.4 GHz for receipt by a receiving antenna.

7. (Currently amended) An audio music digital wireless receiver for spread spectrum communication of an audio music signal [to be received by a battery powered spread spectrum receiver], comprising:

a receiving antenna in communication with a spread spectrum communication demodulator;

said spread spectrum communication demodulator in communication with a code generator configured to create a unique hop pattern for each individual user;

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said digital demodulator in communication with [a wide bandpass filter;
said wide bandpass filter in communication with] a channel decoder;
said channel decoder in communication with a decoder;
said decoder in communication with a DAC;
said DAC in communication with a low pass filter to pass the analog music signal
in the approximate frequency band of 20 Hz to 20kHz; and

said low pass filter passing analog music signal will be amplified for processing
to a speaker headphone set to provide high quality music for listening by a single user
wearing the headphones.

8. (New) A wireless digital audio music system for spread spectrum
communication of an audio music signal from the analog headphone jack connected to a
battery powered spread spectrum transmitter and received by a battery powered spread
spectrum headphone receiver comprising:

an analog headphone jack from an audio music source in communication with a
battery powered digital transmitter;

said battery powered digital transmitter converts an analog audio music signal
from said existing analog headphone jack to a digital signal using an ADC in
communication with an encoder;

said encoder in communication with a channel encoder;

said channel encoder in communication with a digital modulator;

said digital modulator in communication with a spread spectrum communication
modulator that utilizes a code generator to create a unique hop pattern for each individual
user;

said spread spectrum communication modulator in communication with a transmit
antenna that transmits at a radio frequency of approximately 2.4 GHz for receipt by a
receiving antenna;

said receiving antenna in communication with a spread spectrum communication
demodulator;

said spread spectrum communication demodulator in communication with a
receiver code generator and with a digital demodulator;

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said digital demodulator in communication with a channel decoder that is configured to perform soft-decision decoding;

said channel decoder in communication with a receiver decoder;

said receiver decoder in communication with a DAC;

said DAC in communication with a low pass filter to pass the analog music signal in the approximate frequency band of 20 Hz to 20 kHz; and

said low pass filter passing analog music signal will be amplified for processing to a speaker headphone set to provide high quality music for listening by a single user wearing the headphones.

9. (New) An audio music digital wireless receiver for spread spectrum communication of an audio music signal, comprising:

a receiving antenna in communication with a spread spectrum communication demodulator;

said spread spectrum communication demodulator in communication with a code generator configured to create a unique hop pattern for each individual user;

said digital demodulator in communication with a channel decoder that is configured to perform soft-decision decoding;

said channel decoder in communication with a decoder;

said decoder in communication with a DAC;

said DAC in communication with a low pass filter to pass the analog music signal in the approximate frequency band of 20 Hz to 20kHz; and

said low pass filter passing analog music signal will be amplified for processing to a speaker headphone set to provide high quality music for listening by a single user wearing the headphones.

10. (New) A wireless digital audio music system for spread spectrum communication of an audio music signal from the analog headphone jack connected to a battery powered spread spectrum transmitter and received by a battery powered spread spectrum headphone receiver comprising:

an analog headphone jack from an audio music source in communication with a battery powered digital transmitter;

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said battery powered digital transmitter converts an analog audio music signal from said existing analog headphone jack to a digital signal using an ADC in communication with an encoder;

said encoder in communication with a channel encoder that is configured to send encoded symbols that are compatible with a Viterbi decoder;

said channel encoder in communication with a digital modulator;

said digital modulator in communication with a spread spectrum communication modulator that utilizes a code generator to create a unique hop pattern for each individual user;

said spread spectrum communication modulator in communication with a transmit antenna that transmits at a radio frequency of approximately 2.4 GHz for receipt by a receiving antenna;

said receiving antenna in communication with a spread spectrum communication demodulator;

said spread spectrum communication demodulator in communication with a receiver code generator and with a digital demodulator;

said digital demodulator in communication with a Viterbi decoder;

said Viterbi decoder in communication with a receiver decoder;

said receiver decoder in communication with a DAC;

said DAC in communication with a low pass filter to pass the analog music signal in the approximate frequency band of 20 Hz to 20 kHz; and

said low pass filter passing analog music signal will be amplified for processing to a speaker headphone set to provide high quality music for listening by a single user wearing the headphones.

11. (New) An audio music digital wireless receiver for spread spectrum communication of an audio music signal to be received by a battery powered spread spectrum headphone receiver comprising:

a receiving antenna in communication with a spread spectrum communication demodulator;

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said spread spectrum communication demodulator in communication with a code generator configured to create a unique hop pattern for each individual user;
said digital demodulator in communication with a Viterbi decoder;
said Viterbi decoder in communication with a decoder;
said decoder in communication with a DAC;
said DAC in communication with a low pass filter to pass the analog music signal in the approximate frequency band of 20 Hz to 20kHz; and
said low pass filter passing analog music signal will be amplified for processing to a speaker headphone set to provide high quality music for listening by a single user wearing the headphones.

12. (New) A wireless digital audio music system for spread spectrum communication of an audio music signal from the analog headphone jack connected to a battery powered spread spectrum transmitter and received by a battery powered spread spectrum headphone receiver comprising:

an analog headphone jack from an audio music source in communication with a battery powered digital transmitter;

said battery powered digital transmitter converts an audio music signal from said existing analog headphone jack to a digital signal using an ADC in communication with an encoder;

said encoder in communication with a channel encoder;

said channel encoder in communication with a digital modulator;

said digital modulator in communication with a spread spectrum communication modulator that utilizes a code generator to create a unique hop pattern for an individual user;

said spread spectrum communication modulator in communication with a transmit antenna that transmits at a radio frequency of approximately 2.4 GHz for receipt by a receiving antenna;

said receiving antenna in communication with a spread spectrum communication demodulator;

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a 2.4 GHz direct conversion receiver that includes a spread spectrum communication demodulator and a receiver code generator;

said spread spectrum communication demodulator in communication with said receiver code generator and with a digital demodulator;

said digital demodulator in communication with a channel decoder;

said channel decoder in communication with a receiver decoder;

said receiver decoder in communication with a DAC;

said DAC in communication with a low pass filter to pass the analog music signal in the approximate frequency band of 20 Hz to 20 kHz; and

said low pass filter passing analog music signal will be amplified for processing to a speaker headphone set to provide high quality music for listening by a single user wearing the headphones.

13. (New) An audio music digital wireless receiver for spread spectrum communication of an audio music signal, comprising:

a receiving antenna in communication with a 2.4 GHz direct conversion receiver, wherein the direct conversion receiver includes a spread spectrum communication demodulator in communication with a code generator, said code generator being configured to create a unique hop pattern for each individual user;

said digital demodulator in communication with a channel decoder;

said channel decoder in communication with a decoder;

said decoder in communication with a DAC;

said DAC in communication with a low pass filter to pass the analog music signal in the approximate frequency band of 20 Hz to 20kHz; and

said low pass filter passing analog music signal will be amplified for processing to a speaker headphone set to provide high quality music for listening by a single user wearing the headphones.